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FILING DATE FIRST NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO. APPLICATION NO. PF-2801/NEC/US/mh/B1(ELD) 09/848,263 05/04/2001 Naoki Furuhata 466 7590 06/14/2002 YOUNG & THOMPSON **EXAMINER** 745 SOUTH 23RD STREET 2ND FLOOR COLEMAN, WILLIAM D ARLINGTON, VA 22202 ART UNIT PAPER NUMBER 2823

DATE MAILED: 06/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Application No.   Application (   Application					1,7
Examiner  W. David Coleman  W. David Coleman  Art Unit  W. David Coleman The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  THE MAILING DATE OF THIS COMMUNICATION.  - and stax (8) MONTH'S from the mailing date of this communication if the period to really a specified above, the maintening date of this communication if the period to really a specified above, the maintening date of this communication If the period to really a specified above, the maintening date of this communication Any really received by the Office little than from enoting date of this communication Any really received by the Office little than from enoting date of this communication Any really received by the Office little than from enoting date of this communication, even if timely filled, may reduce any really a state of the communication and part term adjustment. Set 3° CPR 1.70(b).  Status  1) Responsive to communication(s) filed on 17 May 2002.  2a) This action is FINAL.  2b) This action is ron-final.  3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  Disposition of Claims  4) Claim(s) 1-47 and 52 is/are pending in the application.  4a) Of the above claim(s) is/are withdrawn from consideration.  5) Claim(s) is/are objected to.  8) Claim(s) is/are objected to.  8) Claim(s) is/are objected to.  8) Claim(s) are subject to restriction and/or election requirement.  Application Papers  9) The specification is objected to by the Examiner.  Application Papers  9) The proposed drawing correction filed on	,		Application No.	Applicant(s)	1
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- The MAILING DATE of this communication appears on the cover sheet with the correspondence address - Period for Reply  A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  Extension of time may be available under the provisions of 3 CFR 1.136(a). In no event, however, may a reply be timely filled that the state of the communication. Set the provision of the provision of 3 CFR 1.136(a). In no event, however, may a reply be timely filled that the contraction of the provision of the pro	Offic		Examiner	Art Unit	
A SHORTENDO STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  - and rest X (8) MONTH'S from the mailing date of this communication.  - if the period for party papelide above, the mainting date of this communication.  - if the period for reply is appelled above, the mainting date of this communication.  - if the period for reply is appelled above, the mainting date of this communication.  - if the period for reply is appelled above, the mainting date of this communication.  - if the period for reply is appelled above, the mainting date of this communication if the period for reply is appelled above, the mainting date of this communication if the period for reply is appelled above, the mainting date of this communication Any reply received by the Office little than three modifies after the mainting date of this communication, even if timely filled, may reduce any carmed patent term adjustment. See 37 CFR 1.704(b).  - Status  - 1) Responsive to communication(s) filled on 17 May 2002.  - 2a) This action is FINAL 2b) This action is non-final.  - 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.  - Disposition of Claims  - 4  Claim(s) 1-47 and 52 is/are pending in the application 4  Claim(s) 1-47 and 52 is/are epicted 5  Claim(s) 1-47 and 52 is/are allowed 6  Claim(s) 1-47 and 52 is/are allowed 6  Claim(s) 1-47 and 52 is/are rejected 7  Claim(s) 1-47 and 52 is/are epicted to 8  Claim(s) 1-47 and 52 is/are rejected 7  Claim(s) 1-47 and 52 is/are rejected 7  The proposed drawing correction fled to 8  Claim(s) 1-47 and 52 is/are rejected 10  The drawing(s) fled on 1 is/are: a) 1 accepted or b) 1 objected to by the Examiner Application Papers  - 9  The proposed drawing correction fled on 1 is/are: a) 1 accepted to by the Examiner 11 approved, corrected drawing are require			l in the state of		
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Art Unit: 2823

## DETAILED ACTION

Page 2

## Election/Restrictions

1. Applicant's election without traverse of Group I invention, claims 1-47 and 52 in Paper No. 5 is acknowledged.

## Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Prasad et al., U.S. Patent 5,268,315.
- 4. <u>Prasad</u> discloses a semiconductor device as claimed. See **FIG. 15**, where <u>Prasad</u> teaches a monolithically integrated semiconductor device comprising:

a hetero-junction bipolar transistor having at least an electrode contact layer 86 which contacts directly with at least one of collector, base and emitter electrodes and;

at least a passive device (NiCr Resistor) having at least a passive device electrode 86 (capacitor), and at least a resistive layer,

wherein said electrode contact layer and said resistive layer comprise the same compound semiconductor layer.

Please note, that given the broadest interpretation, silicon nitride is known as a compound semiconductor layer.

Art Unit: 2823

5. Pertaining to claim 2, <u>Prasad</u> teaches wherein the said passive device electrode and one of said collector, base and emitter electrodes comprises the same metal layer **86**.

- 6. Pertaining to claim 3, <u>Prasad</u> teaches wherein said passive device further comprises: a resistive element (resistor) layer, and at least a resistive element electrode; and a metal-insulator-metal capacitor (column 7, line 11) which comprises: a bottom electrode; a capacitive dielectric layer; and a top electrode.
- 7. Pertaining to claim 4, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises a base electrode contact layer which contacts directly with said base electrode.
- 8. Pertaining to claim 5, <u>Prasad</u> teaches wherein said base electrode contact layer, said resistive element layer and said capacitive dielectric layer comprise the same compound semiconductor layer.
- 9. Pertaining to claim 6, <u>Prasad</u> teaches wherein said base electrode and said bottom electrode comprise the same metal layer.
- 10. Pertaining to claim 7, <u>Prasad</u> teaches wherein said base electrode and said top electrode comprise the same metal layer.
- 11. Pertaining to claim 8, <u>Prasad</u> teaches wherein said base electrode and said resistive element electrodes comprise the same metal layer.
- 12. Pertaining to claim 9, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises a collector electrode contact layer which contacts directly with said collector electrode.

Art Unit: 2823

13. Pertaining to claim 10, <u>Prasad</u> teaches wherein said collector electrode contact layer, said resistive element layer and said capacitive dielectric layer comprise the same compound semiconductor layer.

- 14. Pertaining to claim 11, <u>Prasad</u> teaches wherein said collector electrode and said bottom electrode comprise the same metal layer.
- 15. Pertaining to claim 12, <u>Prasad</u> teaches wherein said collector electrode and said top electrode comprise the same metal layer.
- 16. Pertaining to claim 13, <u>Prasad</u> teaches wherein collector electrode and said resistive element electrodes comprise the same metal layer.
- 17. Pertaining to claim 14, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises an emitter electrode contact layer with contacts directly with said emitter electrode.
- 18. Pertaining to claim 15, <u>Prasad</u> teaches wherein said emitter electrode contact layer, said resistive element layer and said capacitive dielectric layer comprise the same compound semiconductor layer.
- 19. Pertaining to claim 16, <u>Prasad</u> teaches wherein said emitter electrode and said bottom electrode comprise the same metal layer.
- 20. Pertaining to claim 17, <u>Prasad</u> teaches wherein said emitter electrode and said top electrode comprise the same metal layer.
- 21. Pertaining to claim 18, <u>Prasad</u> teaches wherein said emitter electrode and said resistive element electrodes comprise the same metal layer.
- 22. Pertaining to claim 19, <u>Prasad</u> teaches wherein said at least passive device further comprises:

Art Unit: 2823

a resistive element which comprises: at least a resistive element layer; and at least a resistive element electrode.

- 23. Pertaining to claim 20, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises a base electrode contact layer which contacts directly with said base electrode.
- 24. Pertaining to claim 21, <u>Prasad</u> teaches wherein said base electrode contact layer and said resistive element layer comprise the same compound semiconductor layer.
- 25. Pertaining to claim 22, <u>Prasad</u> teaches wherein said base electrode and said resistive element electrodes comprise the same metal layer.
- 26. Pertaining to claim 23, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises a collector electrode contact layer which contacts directly with said collector electrode.
- 27. Pertaining to claim 24, <u>Prasad</u> teaches wherein said collector electrode contact layer and said resistive element layer comprise the same compound semiconductor layer.
- 28. Pertaining to claim 25, <u>Prasad</u> teaches wherein said collector electrode and said resistive element electrodes comprise the same metal layer.
- 29. Pertaining to claim 26, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises an emitter electrode contact layer which contacts directly with said emitter electrode.
- 30. Pertaining to claim 27, <u>Prasad</u> teaches wherein said emitter electrode contact layer and said resistive element layer comprise the same compound semiconductor layer.
- 31. Pertaining to claim 28, <u>Prasad</u> teaches wherein said emitter electrode and said resistive element electrodes comprise the same metal layer.

Art Unit: 2823

32. Pertaining to claim 29, <u>Prasad</u> teaches wherein said at least passive device further comprises:

a metal-insulator-metal capacitor which comprises: a bottom electrode; a capacitive dielectric layer; and a top electrode.

- 33. Pertaining to claim 30, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises a base electrode contact layer which contacts directly with said base electrode.
- 34. Pertaining to claim 31, <u>Prasad</u> teaches wherein said base electrode contact layer and said capacitive dielectric layer comprise the same compound semiconductor layer.
- 35. Pertaining to claim 32, <u>Prasad</u> teaches wherein said base electrode and said bottom electrode comprise the same metal layer.
- 36. Pertaining to claim 33, <u>Prasad</u> teaches wherein said base electrode and said top electrode comprise the same metal layer.
- 37. Pertaining to claim 34, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises a collector electrode contact layer which contacts directly with said collector electrode.
- 38. Pertaining to claim 35, <u>Prasad</u> teaches wherein said collector electrode contact layer and said capacitive dielectric layer comprise the same compound semiconductor layer.
- 39. Pertaining to claim 36, Prasad teaches wherein said collector electrode and said bottom electrode comprise the same metal layer.
- 40. Pertaining to claim 37, <u>Prasad</u> teaches wherein said collector electrode and said top electrode comprise the same metal layer.

Application/Control Number: 09/848,263 Page 7

Art Unit: 2823

41. Pertaining to claim 38, <u>Prasad</u> teaches wherein said at least electrode contact layer comprises an emitter electrode contact layer which contacts directly with said emitter electrode.

- 42. Pertaining to claim 39, <u>Prasad</u> teaches wherein said emitter electrode contact layer and said capacitive dielectric layer comprise the same compound semiconductor layer.
- 43. Pertaining to claim 40, <u>Prasad</u> teaches wherein said emitter electrode and said bottom electrode comprise the same metal layer.
- 44. Pertaining to claim 41, <u>Prasad</u> teaches wherein said emitter electrode and said top electrode comprise the same metal layer.
- 45. Pertaining to claim 42, <u>Prasad</u> teaches a monolithically integrated semiconductor device comprising:

a hetero-junction bipolar transistor having at least an electrode contact layer which contacts directly with at least one of collector, base and emitter electrodes; and

at least a passive device having at least a passive device electrode and at least a resistive layer,

wherein said passive device electrode and one of said collector, base and emitter electrodes comprises the same metal layer.

- 46. Pertaining to claim 43, <u>Prasad</u> teaches wherein said electrode contact layer and said resistive layer comprise the same compound semiconductor layer.
- 47. Pertaining to claim 44, <u>Prasad</u> teaches wherein said at least passive device further comprises:

a resistive element which comprises: at least a resistive element layer; and at least a resistive element electrode; and

a metal-insulator-metal capacitor which comprises: a bottom electrode; a capacitive dielectric layer; and a top electrode.

48. Pertaining to claim 45, <u>Prasad</u> teaches wherein said at least passive device further comprises:

a resistive element which comprises: at least a resistive element layer; and at least a resistive element electrode.

- 49. Pertaining to claim 46, <u>Prasad</u> teaches wherein said at least passive device further comprises: a bottom electrode; a capacitive dielectric layer; and a top electrode.
- 50. Pertaining to claim 47, <u>Prasad</u> teaches a monolithically integrated semiconductor device comprising:

a hetero-junction bipolar transistor having at least an electrode contact layer which contacts directly with at least one of collector, base and emitter electrodes;

a resistive element which comprises: at least a resistive element layer; and at least a resistive element electrode; and

a metal-insulator-metal capacitor which comprises a bottom electrode; a capacitive dielectric layer; and a top electrode,

wherein said electrode contact layer, said resistive element layer and said capacitive dielectric layer comprise the same compound semiconductor layer, and

wherein said resistive element electrode, said top electrode and said at least one of collector, base and emitter electrodes comprises the same metal layer.

51. Pertaining to claim 52, <u>Prasad</u> teaches a monolithically integrated semiconductor device comprising: a hetero-junction bipolar transistor having at least an electrode contact layer which

Art Unit: 2823

contacts directly with at least one of collector, base and emitter electrodes; a resistive element which comprises: at least a resistive element layer; and at least a resistive element electrode; and a metal-insulator-metal capacitor which comprises: a bottom electrode; a capacitive dielectric layer; and a top electrode,

wherein said electrode contact layer, said resistive element layer and said capacitive dielectric layer are formed concurrently in the same processes, and

wherein said resistive element electrode, said top electrode and said at least one of collector, base and emitter electrodes are formed concurrently in the same processes.

- 52. Pertaining to claim 52, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).
- 53. "The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature: than when a product is claimed by conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to Applicant to come forward with evidence establishing an unobvious

Application/Control Number: 09/848,263 Page 10

Art Unit: 2823

difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Conclusion

54. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to W. David Coleman whose telephone number is 703-305-0004.

The examiner can normally be reached on 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wael M. Fahmy can be reached on 703-308-4918. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-308-7722 for regular

communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is 703-308-0956.

W. David Coleman

Examiner

Art Unit 2823

WDC June 12, 2002